

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
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Wireless E911 Location Accuracy Requirements) P.S. Docket 07-114
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COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

I. INTRODUCTION AND SUMMARY

The Telecommunications Industry Association (“TIA”) hereby submits comments to the Federal Communications Commission (“Commission”) in the above-captioned proceeding.¹ TIA appreciates the opportunity to discuss how the Commission can further effectively support and develop the location accuracy capabilities of 911 and E911 services for voice communications during emergencies.

TIA represents the global information and communications technology (ICT) industry through standards development, advocacy, tradeshow, business opportunities, market intelligence, and world-wide environmental regulatory analysis. Its hundreds of member companies manufacture or supply the products and services used to provide broadband and broadband-enabled applications. Since 1924, TIA has enhanced the business environment for broadband, mobile wireless, information technology, networks, cable, satellite, and unified

¹ See, In the Matter of Wireless E911 Location Accuracy Requirements Third *Further Notice of Proposed Rulemaking*, P.S. Docket 07-114 (Rel. February 20, 2014) (“FNPRM”)

communications. TIA’s standards committees create consensus-based voluntary standards for numerous facets of the ICT industry.

The ICT industry and wireless carriers continue to experiment with highly innovative approaches and new products that hold significant potential to improve location accuracy over time. However, location accuracy requirements should reflect technology availability and not depend on nascent stage solutions. Yet as the FNPM recounts, CSRIC Working Group 3 concluded regarding the Indoor Location Test Bed that “additional development is required to ensure” the provision of an “actionable location,” especially in urban and dense urban environments. Moreover, the test bed found “substantial progress” in the beacon technology’s capability to provide vertical (z-axis) location information, providing approximate floor-level accuracy in a significant percentage of calls.²

The requirements should also not be structured to favor, or to disadvantage, any particular technology. In the Next Generation 9-1-1 Advancement Act of 2012, Congress wisely recognized that location technologies remain in development, and that undue burdens should not be imposed.³

TIA urges the Commission to focus on allowing the formulation and implementation of standards and best practices by network providers, vendors, and all stakeholders. If the Commission nonetheless adopts further location accuracy requirements—which TIA strongly opposes at this time—TIA urges it to consider the unique challenges presented by the

² See CSRIC III Working Group 3, E9-1-1 Location Accuracy Final Report v2 (June 1, 2012), *available at* http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRICIII_6-6-12_WG3-Final-Report.pdf (last visited May 9, 2014) (*CSRIC E911 Location Accuracy Report*) at 8. noted at FNPRM at 15

³ See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96 (2012), Title VI, Subtitle E (Next Generation 9-1-1 Advancement Act of 2012).

tremendously differing physical settings that networks serve in the United States, and ensure that any new rules adhere to technology neutral and results-based principles.

II. TIA SUPPORTS IMPROVED LOCATION ACCURACY

TIA has long-supported the Commission's focus on improving location accuracy for emergency communications. TIA supported the Commission's efforts to improve 911 and E911 services as far back as 2007.⁴ Even now, industry is working to improve location accuracy technologies and applications to more quickly and accurately locate persons in crisis. Industry is also working to facilitate emergency requests by, and responses to, those with disabilities and those who reside in sparsely populated or tribal areas. TIA recognizes the need for improved location accuracy and will continue to work with the Commission and all stakeholders to ensure that wireless services meet the needs of the American people during emergencies.

III. INDOOR LOCATION ACCURACY REQUIREMENTS SHOULD BE BASED ON STANDARDS, CONSISTENT WITH CURRENTLY AVAILABLE AND FUTURE KNOWN TECHNOLOGY

The Commission should refrain from adopting new location accuracy rules at this time. Although TIA supports the development of improved location accuracy, many concerns remain regarding the impact of new requirements on innovation and whether technology is sufficiently developed to support the proposed mandate.

The Commission's experience with the E-911 Phase II implementation warrants consideration, as requirements should be based on technology the claims for which can be confirmed with verified data using commercially available products. A requirement based on speculation or prototype solutions exposes the Commission to having to regularly revisit the issue in a granular manner. As CTIA has noted regarding E-911 Phase II implementation: "The

⁴ See Comments of the Telecommunications Industry Association, CC Docket No. 94-102, PS Docket No. 07-114, WC Docket No. 05-196 (filed Aug. 20, 2007), at 2.

Commission issued roughly forty waiver orders addressing countless individual waiver petitions and acted on more than a dozen enforcement decisions.”⁵

The evolving IEEE 802.11mc and completed IEEE 802.11k/u are currently on track to be ready for Wi-Fi Alliance certification in the 2015 timeframe. As Cisco has reported to the Commission, “802.11mc File Timing Measurement protocol over the 802.11ac (80MHz) Physical layer will be capable of producing 10 feet of accuracy on a horizontal X/Y axis 90% of the time although more accurate data is possible depending upon implementation and the use of “angle of arrival” data. Retailers, in particular, are interested in detailed granulation of location data so that they can track traffic through Specific aisles in their stores.”⁶

TIA notes, though, that new user devices will need to be deployed to support this feature in order to be available to support the Commission’s location accuracy objectives.

A. Imposing Unrealistic Mandates on Industry Will Stifle Innovation and Delay Deployment of Useful E911 Emergency Location Technology

The most effective and efficient improvements to location accuracy technology will be developed through a light-touch, technology-neutral regulatory environment that empowers industry to do what it does best: develop innovative market solutions. Placing additional compliance burdens on industry at this time, through further location accuracy regulations, will divert focus from developing new life-saving, advanced location accuracy techniques and instead

⁵ See CTIA ex parte Ex Parte Presentation, PS Docket No. 07-114 Feb 14, 2014 (last visited May 9, 2014 <http://apps.fcc.gov/ecfs/document/view?id=7521073289>)

⁶ See Cisco EX PARTE in Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission’s Rules, GN Docket No. 11-117; Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114; E911 Requirements for IP-Enabled Service Providers, WC Docket No. 05-196 July 24 2013 (last visited May 9, 2014 <http://apps.fcc.gov/ecfs/document/view?id=7520933308>)

place focus on regulatory compliance. To date, the development of 911 and E911 location accuracy technologies and applications has been fostered by a voluntary and consensus-based standards process. This process has proven quite successful to date, and the Commission should refrain from imposing regulations that could slow additional development.

If the Commission nonetheless adopts new rules—which TIA strongly opposes at this time shouldn’t—TIA encourages it to recognize the challenges posed by different geographic locations and to set a reasonable and flexible timeline for carriers to improve location accuracy in all environments. Further, the Commission should continue to ensure that E911 location accuracy requirements are technology-neutral and consciously avoid favoring or disfavoring one technology over another.

B. It Is Not Clear That Location Accuracy Technology Is Sufficiently Developed To Support Implementation of an Indoor Location Accuracy Requirement

The NPRM proposes a near-term requirement to achieve “rough” indoor location information.⁷ It proposes to require CMRS providers subject to Section 20.18 to provide horizontal information for wireless 911 calls that originate indoors, specifically a caller’s location within 50 meters.⁸

While significant improvements have been made to indoor location accuracy technology, the NPRM itself notes that, “the record, to date, is divided regarding whether location accuracy technology is sufficiently developed to support the near-term implementation of an indoor location accuracy requirement.”⁹

At the conclusion of the *CSRIC Indoor Location Test Bed Report*, WG3 noted, “additional development is required to ensure” the provision of an “actionable location,”

⁷ See NPRM at ¶ 44

⁸ Id.

⁹ See NPRM at ¶ 56

especially in urban and dense urban environments.¹⁰ For a PSAP, “actionable location” is obtaining the correct civic address, which is more important than obtaining some relative measure of meters and its associated error margin. Although the CSRIC Test Bed Report revealed promising data for the deployment of improved indoor location technologies, providers continue to express concern about whether they can realistically meet the proposed requirements based on currently available technology. In a letter to the Commission, CTIA noted, “It is hoped that such [indoor location] technologies would be tested and validated in future test bed campaigns.”¹¹ AT&T noted, “[T]he time [is] right to begin discussing Indoor Location Accuracy for E911” but the “FCC should be careful to ensure that any proposed rules on location accuracy are aligned with proven capabilities of the current state of technology and they should set realistic accuracy benchmarks that the industry and public safety can embrace.”¹²

C. Technology Capable of Meeting the Vertical Location Requirements Is Not Sufficiently Developed Nor Readily Available

The NPRM proposes to require CMRS providers to deliver z-axis information within 3 meters of the caller’s location, for 67 percent and 80 percent of indoor wireless 911 calls within three years and five years of the effective date of adoption rules, respectively.¹³ Based on the test bed report and filings in the record, the Commission noted it believes a 3-meter vertical location accuracy requirement is technically feasible. However, CSRIC and several commenters have emphasized that z-axis technology requires further research, standardization and

¹⁰ See CSRIC III WG3, Indoor Location Test Bed Report (Mar. 14, 2013), at 8, Last visited May 9, 2014 available at http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRIC_III_WG3_Report_March_%202013_ILTestBedReport.pdf (CSRIC Indoor Location Test Bed Report)

¹¹ See Letter from Brian Josef, CTIA-The Wireless Association, to Marlene Dortch, Secretary, FCC, PS Docket 07-114 (filed Feb. 14, 2014), at 2

¹² See letter from Joseph P. Marx, Assistant Vice President, AT&T Services, Inc., to Marlene Dortch, Secretary, FCC, PS Docket 07-114 (filed Feb. 13, 2014), at 1

¹³ NPRM at ¶ 73

development before it can be effectively implemented.

1. Development of Z-axis Technology

TIA agrees that a vertical, or “z-axis” component, would greatly enhance location accuracy. As noted in the NPRM, vertical location information would substantially benefit first responders trying to locate callers in multi-story buildings.¹⁴ However, technology capable of ubiquitously meeting the requirements proposed in the NPRM is not readily available. Thus, TIA urges the Commission not to implement regulations until technology is available that can satisfy such regulations.

The Commission most recently sought comment on the technical feasibility of implementing vertical location accuracy requirements in its 2010 *E911 Location Accuracy Further Notice*.¹⁵ Commenters generally agreed that no technology with sufficiently developed z-axis location capabilities existed. Commenters also stressed the unique challenges of providing vertical location and emphasized the difficulties PSAPs would face with interpreting and translating z-axis data into a usable format for first responders.

CSRIC II’s Working Group 4C (WG4C) also identified several challenges with providing vertical location data.¹⁶ Although the CSRIC III WG3 indoor location test bed did not specifically focus on technologies that could provide z-axis information, one vendor tested its indoor location technology for vertical location accuracy in the test bed.¹⁷ Although WG3 recognized that z-axis technology has taken significant strides toward commercial viability, they noted that, “[p]ublic safety recognizes that additional work remains before actionable altitude

¹⁴ See NPRM at ¶ 65

¹⁵ See *E911 Location Accuracy Further Notice*, 25 FCC Rcd at 18966-67 ¶ 23.

¹⁶ CSRIC II Working Group 4C, *Technical Options for E911 Location Accuracy Final Report*, at 28 (March 14, 2011), last visited May 9, 2014 available at

http://transition.fcc.gov/pshs/docs/csric/CSRIC_4C_Comprehensive_Final_Report.pdf

¹⁷ See CSRIC Indoor Location Test Bed Report at 36

measurements can be broadly provided and utilized to aid first responders, including standardization, commercial availability, and deployment of such technologies.”¹⁸ Several commenters agree and argue that vertical location technology is not yet sufficiently developed or widely available to reasonably require providers to support this capability.¹⁹

2. PSAPs and Indoor location/Z-axis Data

The Commission seeks comment on whether PSAPs are ready to make use of z-axis location information.²⁰ For a PSAP, actionable information on z-axis location is obtaining the correct floor number based on the floor numbering scheme of the particular building rather than the relative height in meters. Although NENA has recently stated that existing location databases have data fields capable of capturing z-axis readings and PSAPs are prepared to accept an extended range of data,²¹ industry continues to express concern over the ability of PSAPs to utilize this data. Previous FCC comments have noted that, “PSAP call takers must be able to visualize vertical location information in computer-aided design (‘CAD’) or other display formats in order to dispatch personnel to the correct place” and that “significant challenges lie ahead in designing and upgrading public safety equipment, databases, and procedures in

¹⁸ Id. at 39

¹⁹ “[E]ven the best location technologies tested have not proven the ability to consistently identify the specific building and floor, which represents the required performance to meet Public Safety’s expressed needs.” CTIA Comments, PS Docket No. 07-114 (filed Sept. 25, 2013), at 9; “[c]urrent technologies do not yet support the Z-axis” TruePosition Comments, PS Docket No. 07-114 (filed Sept. 25, 2013), at 6; “[n]o currently available technology can provide accurate vertical location.” T-Mobile USA, Inc. Comments, PS Docket No. 07-114 (filed Sept. 25, 2013), at 3.

²⁰ See FNPRM at ¶ 76

²¹ See U.S. Senate Committee on Commerce, Science, and Transportation, Subcommittee on Communications, Technology, and the Internet Hearing, “Locating 911 Callers in a Wireless World,” Jan. 16, 2014, last visited May 9, 2014 *available at* http://www.commerce.senate.gov/public/index.cfm?p=Hearings&ContentRecord_id=c8765be1-6155-459f-8ca7-7e9e557e84b5&ContentType_id=14f995b9-dfa5-407a-9d35-56cc7152a7ed&Group_id=b06c39af-e033-4cba-9221-de668ca1978a

preparing for future availability of vertical information.”²² Other comments have stated that, “many PSAPs are not presently prepared to fully utilize Z-axis data in the emergency dispatch process because they do not have accurate mapping systems to convert Z-axis data into floor-level dispatchable information.”²³

Only one vendor participating in CSRIC’s indoor location accuracy test bed provided location information with a z-axis component.²⁴ CSRIC states that, “even the best location technologies tested have not proven the ability to consistently identify the specific building and floor, which represents the required performance to meet Public Safety’s expressed needs. This is not likely to change over the next 12-24 months.”²⁵ It should be noted that the technology demonstrated by this one vendor in CSRIC only intends the solution to be deployed in dense urban environments and thus z axis would not be universally available via this one approach.

Given the need for further development of z-axis technology, TIA urges the Commission refrain from adopting onerous and prescriptive rules at this time and to instead maintain a flexible and light-touch approach essential to the development of E911 technologies. Indeed, promulgating new location accuracy requirements before the technology is fully tested, verified and readily available in devices and wireless networks will chill the development of location accuracy industry standards and best practices.

²² See Polaris Wireless Comments, PS Docket 07-114 (filed Sept. 25, 2013), at 8.

²³ See Letter from Bruce A. Olcott, Counsel to NextNav, LLC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Nov. 26, 2013), at 4 (NextNav Nov. 26, 2013 *Ex Parte* Letter), *citing* the remarks of John Snapp, Senior Technical Officer and Vice President, Intrado, at FCC E911 Phase II Location Accuracy Workshop, at minute 146, *available at* <http://www.fcc.gov/events/workshop-e911-phase-ii-location-accuracy>

²⁴ See CSRIC Indoor Location Test Bed Report at 36, 39.

²⁵ *Id.* at 54-55.

IV. CONCLUSION

TIA strongly supports the Commission's goal to improve location accuracy. But imposing location accuracy mandates at this time would be premature, given the nascent stage of the technology that will be needed to accomplish the Commission's objectives, and should neither favor nor disfavor specific technologies. TIA looks forward to working with the Commission and industry to continue to develop technologies that will improve location accuracy for the public safety community. We strongly support the continued role for CSRIC in tracking the evolution of location performance.

Respectfully submitted,

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